ABSTRACT

AIM:

The aim of the study is to evaluate the rate of tooth movement by varying the frequency of micro osteo perforations and also to analyze any difference in the rate of tooth movement between maxilla and mandible at 28^{th}, 56^{th}, 84^{th} day in individual canine retraction cases.

MATERIALS AND METHOD:

After approval from institutional review board and clearance from ethical committee (IRB/EC Ref No:2016-MDS-BR.V-SUD-11/APDCH) the study was initiated. Out patients who reported to the department of orthodontics, APDCH, after completing their informed consent form, a total of 20 patients having class I malocclusion, bimaxillary protrusion who satisfied the inclusion and exclusion criteria and required therapeutic extraction of both maxillary and mandibular 1^{st} premolars were included in the study.

In total 80 samples were obtained 40 (20 control & 20 experimental) in maxilla and 40 (20 control & 20 experimental) in mandible respectively.

Patients were randomly assigned to one of the study groups. The experimental sites received MOPs on either the right or left side; the control group did not receive MOPs.

All the permanent teeth were bonded with 0.022” MBT PRESCRIPTION with auxiliary vertical slot canine brackets. After initial aligning and leveling, mid treatment records were taken. Final arch wire of 0.019*0.025 SS arch wire was placed in both the arches for one month and then the retraction phase started.

Mini screws were used as the source of anchorage and the individual canine retraction was achieved using 9mm NiTi closed coil spring

connected from temporary anchorage device to the customized serpentine hook placed in the vertical slot of canine brackets to deliver a force of 100g to produce bodily tooth movement which was checked periodically using dontrix gauge.

Five MOPs were performed using custom made propulser (implant driver and mini screws, 3mm depth and 1.5mm width). In that, 2 MOPs were placed just distal to canine and 3 MOPs at the center of the extraction socket.

The distance between the canine and lateral incisor was assessed before and after canine retraction at 3 points namely incisal, middle, and cervical third of the crown from palatal aspect on the cast and rechecked to reduce intra and inter examiner error and the results were analyzed statistically.

RESULT:

The results of the study showed a statistically significant difference in the rate of tooth movement between the micro-osteo perforation (MOP) and control side at all 3 interval of time period, the maxillary arch showed 3 fold increase and mandibular arch showed 2 fold increase. When comparing the micro-osteo perforation (MOP) site alone in both the arches, maxillary canines were retracted faster and mandibular canine showed slight decrease in the rate of tooth movement.

CONCLUSION:

Micro-osteo perforation (MOP) is an effective, comfortable and safe procedure to accelerate tooth movement and significantly reduce the duration of orthodontic treatment time.

KEY WORDS:

Micro-osteo perforation (MOP), individual canine retraction, customized propulser and serpentine hook